ZTE MG3431 Module Technical Specifications

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Foreword

Summary

The corresponding product to this document is MG3431 module. It introduces the appearance, hardware framework, functions and technical specifications of MG3431, which is used for supporting design reference to hardware engineers and product designers.

Object readers

This document is mostly suitable for engineers as below:

- System designers
- Product engineers
- Hardware engineers
- Software engineers
- Test engineers

Brief

This document contains 6 chapters, as following:

Chapter	Contents
1Summary	Background, concepts and applications of MG3431
2 Abbreviation	Abbreviations appeared in this document
3 Appearance and framework	Appearance figure of MG3431 module
4 Functions	Basic functions of MG3431 module
5 Interfaces	Basic interfaces of MG3431 module
6 Technical specifications	Introduce particular technical specifications of MG3431 module

Modified records

Modified records accumulate update notes every time. The latest document version includes all update contents previously.

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Released formally for the 1st time

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1 Summary

ZTE MG3431 module is the EDGE wireless module, with abundant voice, SMS and data service functions. The modules can be applied in handsets, wireless data cards, USB modem, trackers, etc. This document introduces the appearance, hardware framework, functions, technical specifications and relevant test standards for MG3431 module in detail.

2 Abbreviation

Abbr.	Full name
ADC	Analog-Digital Converter
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
ARFCN	Absolute Radio Frequency Channel Number
ARP	Antenna Reference Point
ASIC	Application Specific Integrated Circuit
BER	Bit Error Rate
BTS	Base Transceiver Station
CDMA	Code Division Multiple Access
CDG	CDMA Development Group
CS	Coding Scheme
CSD	Circuit Switched Data
CPU	Central Processing Unit
DAI	Digital Audio interface
DAC	Digital-to-Analog Converter
DCE	Data Communication Equipment
DSP	Digital Signal Processor
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
DTR	Data Terminal Ready
EDGE	Enhanced Data rate for GSM Evolution
EFR	Enhanced Full Rate
EGSM	Enhanced GSM
EMC	Electromagnetic Compatibility
EMI	Electro Magnetic Interference
ESD	Electronic Static Discharge
ETS	European Telecommunication Standard
FDMA	Frequency Division Multiple Access
FR	Full Rate
GPRS	General Packet Radio Service

GSM	Global Standard for Mobile Communications
HR	Half Rate
IC	Integrated Circuit
IMEI	International Mobile Equipment Identity
ISO	International Standards Organization
ITU	International Telecommunications Union
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MCU	Machine Control Unit
MMI	Man Machine Interface
MS	Mobile Station
PCB	Printed Circuit Board
PCL	Power Control Level
PCS	Personal Communication System
PDU	Protocol Data Unit
PLL	Phase Locked Loop
PPP	Point-to-point protocol
RAM	Random Access Memory
RF	Radio Frequency
ROM	Read-only Memory
RMS	Root Mean Square
RTC	Real Time Clock
SIM	Subscriber Identification Module
SMS	Short Message Service
SRAM	Static Random Access Memory
TA	Terminal adapter
TDMA	Time Division Multiple Access
TE	Terminal Equipment also referred it as DTE
UART	Universal asynchronous receiver-transmitter
UIM	User Identifier Management
USB	Universal Serial Bus
VSWR	Voltage Standing Wave Ratio
ZTE	ZTE Corporation

3 Appearance and framework

Appearance of MG3431 is as following figure 3-1:

Figure 3-1 Appearance of MG3431 module

- Dimension（length x width x height）：34.5mm x 26.0mm x 2.5mm
- Weight：5g

4 Functions

Please refer to Table 4-1 for the main functions and features.

Table 4-1 Main functions and features

Item	Description
Data	EDGE data service
Voice	High-quality voice
SMS	Support TEXT and PDU

5 Interfaces

Please refer to Table 5-1 for the Interfaces.

Table 5-1 Interfaces of the module

Item	Description
UART interface	Download software to update Data communication Maximum data rate 460kbps through the port
Audio interface	Audio I/O channel
SIM card interface	SIM card interface
Antenna interface	50 Ohm input impedance control
USB interface	USB2.0 Device, support full speed (480Mbps)

6 Technical specifications

6.1 Technical parameters

Please refer to Table 6-1 for the Technical parameters

Table 6-1 Technical parameters

Item	Description
Working temperature	-20°C ~ +55°C
Input voltage	3.3V-4.25V
Maximum current	1800mA @ -102 dBm/EGSM900
Idle current	17.5mA @ -75 dBm/EGSM900
Call current	110mA @ -75 dBm/EGSM900
Low power current	8mA

6.2 RF specifications

Please refer toTable 6-2 for the RF specifications parameters

Table 6-2 RF specifications parameters

Item	GSM 900MHz frequency band	DCS 1800MHz frequency band
Tx frequency band	880~915MHz	1710~1785MHz
Rx frequency band	925~960MHz	1805~1880MHz
Output power EDGE	500mW (+27dBm)	400mW (+26dBm)
Output power GSM	2W (+33dBm)	1W (+30dBm)
Sensitivity	Less than -102dBm	
EDGE encoding	Support MCS1~MCS9	
EDGE rate	EDGE CLASS10 Download speed is 236.8Kbps Upload speed is 118.4 kbps	EDGE rate
GPRS encoding	Support CS1~CS4	GPRS encoding
GPRS rate	CLASS12 rate is 120 kbps	GPRS rate
Frequency error	Less than 0.1 PPM	Frequency error

6.3 Recommendation of antenna specs

The recommended antenna specs are as following table 6-3:

Table 6-3 Recommended antenna specs

VSWR	1.5:1 maximum
Gain	At least 0 dBi in one direction
Input impedance	50Ω
Polarized form	Vertical polarizing

The requirements for antenna's gain are different in different environment. Commonly, in used

frequency range, the larger gain, the better capability; otherwise, out of this range, the smaller gain, the better capability.

6.4 Power supply

The input voltage is shown in table 6-4:

Table 6-4 Input voltage

State	Max. voltage	Typical voltage	Min. voltage
Power supply	4.25 VDC	3.90 VDC	3.30 VDC

6.5 Working conditions

- Working temperature: -20℃ ~ +55℃
- Storage temperature: -40℃ ~ +70℃
- Humidity: 5% ~ 95%